

# 1999 Savannah River Site Annual Epidemiologic Surveillance Report

# **SAVANNAH RIVER SITE**

## **1999 Epidemiologic Surveillance Report**

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## **SAVANNAH RIVER SITE 1999**

### **At a Glance**

**F**rom 1998 to 1999, a 34 percent increase in absences occurred despite a 2 percent decrease in the size of the work force. This continues a trend that began in 1998 when an 11 percent increase in absences was reported despite a 5 percent decrease in the size of the work force from its 1997 level.

**A**lmost twice as many respiratory diagnoses were reported in 1999 as in 1998.

**L**ost and restricted workdays associated with occupational illnesses and injuries increased 31 percent over the 1998 total among women. Men experienced a 30 percent decrease from the 1998 total.

**W**orkers in the Service and Crafts and Manual Labor job categories accounted for 8 percent of the work force but 32 percent of the OSHA-recordable events.

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## Introduction

The U.S. Department of Energy's (DOE) commitment to assuring the health and safety of its workers includes the conduct of epidemiologic surveillance activities that provide an early warning system for health problems among workers. The Epidemiologic Surveillance

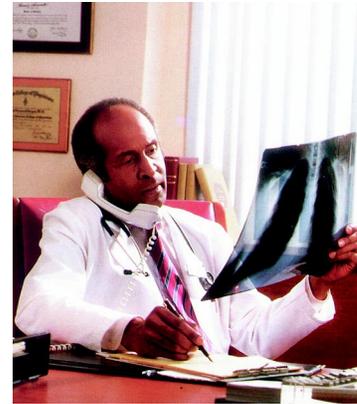


Program monitors illnesses and health conditions that result in an absence of 5 or more consecutive workdays, occupational injuries and illnesses, and disabilities and deaths among current workers.

Epidemiologic Surveillance has been conducted at Savannah River Site (SRS) since 1994, and as a pilot project from 1992. This report provides a summary of epidemiologic surveillance data collected from SRS from January 1, 1999 through December 31, 1999. The data were collected by a coordinator at SRS and submitted to the Epidemiologic Surveillance Data Center located at Oak Ridge Institute for Science and Education, where quality control procedures and preliminary data analyses were carried out. The analyses were interpreted and the final report prepared by the DOE Office of Health Programs.

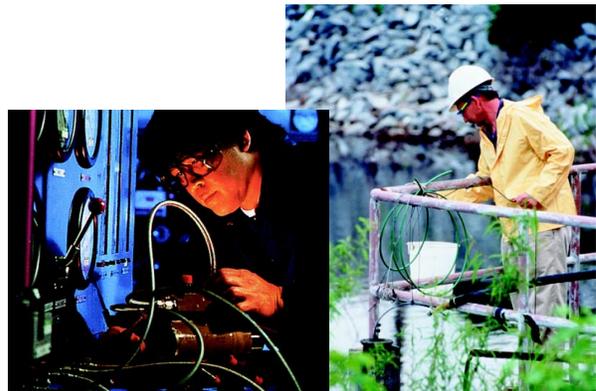
The information in this report provides highlights of the data analyses conducted on the 1999 data collected from SRS. Surveillance reports and additional supporting tables are posted on the Office of Health Programs' Web site (<http://www.eh.doe.gov/epi/surv>)

or are available by request. The main sections of the report include: work force characteristics; absences due to injury or illness lasting 5 or more consecutive workdays; workplace illnesses, injuries, and deaths that were reportable to the Occupational Safety and Health Administration ("OSHA-recordable" events); and disabilities and deaths among current workers. The 1999 report includes a section on time trends that provides comparative information on the health of the work force from 1994 through 1999.



**Note: In the figures and calculations that follow, percentages have been rounded to the nearest whole number.**

DOE sites vary by mission, function, job classification, and worker exposures. Comparisons of SRS with other DOE sites should be made with caution. In addition, many factors can affect the completeness and accuracy of health information reported at the sites, thereby affecting the observed patterns of illness and injury.



## Site Overview

Savannah River Site (SRS) is a 310-square-mile facility located on the Savannah River near Aiken, South Carolina and Augusta, Georgia. It is owned by the U.S. Department of Energy and operated by a team of companies led by the Westinghouse Savannah River Company. The site was constructed during the 1950s and produced nuclear weapons materials (tritium and plutonium-239) for the United States' defense program from that time through the 1980s. The years of weapons materials production resulted in unusable byproducts such as intensely radioactive waste,



low-level liquid and solid radioactive wastes, transuranic waste, hazardous waste, and mixed wastes.

After the end of the Cold War, the mission for SRS changed from nuclear materials production to environmental restoration and waste management. All five of the original production reactors are permanently shut down. There are over 400 inactive waste and groundwater units in the site's environmental restoration program. This work is expected to take decades to complete. Decontamina-



tion and decommissioning of surplus facilities is also being conducted, with more than 600 facilities presently being assessed.

Part of the site's mission is to recycle and reload tritium to keep the nation's supply of nuclear weapons ready. SRS is the nation's only source for recycling tritium from reservoirs of nuclear weapons no longer in service. This process allows the United States to stretch its tritium supplies. The site is also focusing on national security work, economic development and technology transfer initiatives, and environmental and waste management activities.

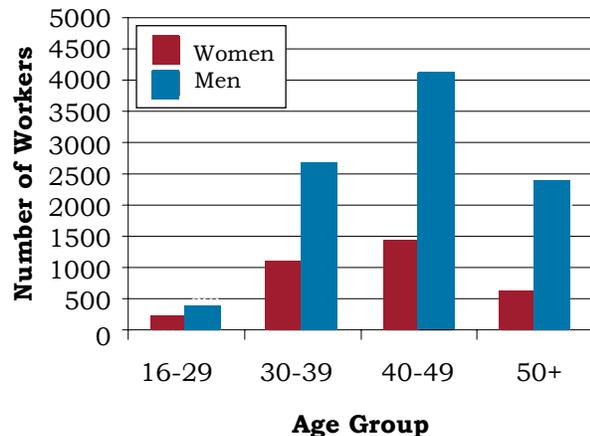


## The Savannah River Site Work Force - 1999

A total of 12,820 Savannah River Site (SRS) employees were included in epidemiologic surveillance in 1999, 276 fewer workers than were present in 1998. The age and gender distribution of the 1999 work force is shown in Figure 1.



Figure 1. The Work Force by Gender and Age



There were 3,302 (26 percent) women and 9,518 (74 percent) men in the work force. The average age of women in the work force was 42 years and 44 years for men. The majority of the workers was White (77 percent). African Americans comprised about 20 percent of the work force; the remaining 3 percent were Hispanics, Asians, Native Americans, and others.

The distribution of workers by gender and job category is shown in Figure 2. Individual job titles reported by SRS were grouped together into seven job categories. This was done because there were either too few workers or too few absences among workers with a particular job title, which limited the types of analyses that could be conducted. Men and women were not distributed equally among the various job categories. Almost half of the female workers (47 percent) were in the Office Management and Administration category and an additional 36 percent were employed as Technical Support workers. Technical Support workers were the largest portion of the male work force (48 percent), followed by Engineering, Scientific, and Health Care (21 percent), and Office Management and Administration (16 percent) workers.



Figure 2. The Work Force by Job Category and Gender

Job Category	Women	Men
Office Management & Administration	<b>1,564</b> 47%	<b>1,576</b> 16%
Engineering, Scientific, & Health Care	<b>275</b> 8%	<b>2,022</b> 21%
Technical Support	<b>1,202</b> 36%	<b>4,553</b> 48%
Service	<b>30</b> 1%	<b>80</b> 1%
Crafts & Manual Labor	<b>105</b> 3%	<b>834</b> 9%
Nuclear Specialties	<b>120</b> 4%	<b>394</b> 4%
Power Operator	<b>6</b> < 1%	<b>59</b> 1%

## Number and Length of Absences

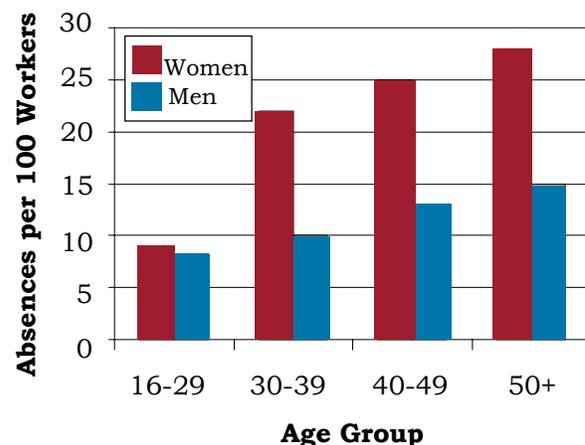
Epidemiologic surveillance examines absences of 5 or more consecutive workdays (also referred to as “5-day absences”). This absence definition is based on DOE Order 440.1, that requires contractor management to notify Occupational Medicine when a worker has been absent for 5 or more



consecutive workdays. If an absence on a Friday continues through Tuesday, the length of that absence includes the weekend. All injuries and illnesses due to a work-related incident must be reported regardless of the length of absence. Non-occupational illnesses and injuries that involve absences of fewer than 5 days do not routinely require a medical clearance for return to work and are excluded from these analyses. One change from surveillance reports issued prior to 1996 is the exclusion of some types of health events resulting in an absence of 5 or more consecutive workdays. In 1999, we excluded 80 reported absences due to maternity leave among women, and 6 absences among four women and two men due to elective surgical procedures that were not related to the treatment of an illness or injury. Throughout this report, analyses take gender, age, and occupation into account because the risk of illness and injury varies by these factors.

Savannah River Site reported 1,989 absences in 1999 compared with 1,484 absences in 1998 and 1,339 in 1997. From 1998 to 1999, a 34 percent increase in absences occurred despite a 2 percent decrease in the size of the work force. This continues a trend that began in 1998 when an 11 percent increase in absences was reported despite a 5 percent decrease in the size of the work force compared with 1997. The rate of 5-day absences due to injury or illness increased with age among both men and women as shown in Figure 3. There were 782 5-day absences among 626 women resulting in an absence rate of 24 per 100 workers (782/3,302). Among the 9,518 men, there were 1,207 absences resulting in an absence rate of 13 per 100 workers (1,207/9,518). Three percent of women (115/3,302) and 2 percent of men (168/9,518) reported more than one 5-day absence in 1999.

**Figure 3. Absence Rate by Gender and Age**



The average length of absence was 24 days for women and 20 days for men (Figure 4). The average duration of absence among both men and women increased with age. The average length of absence was longer among women than men in all age groups.

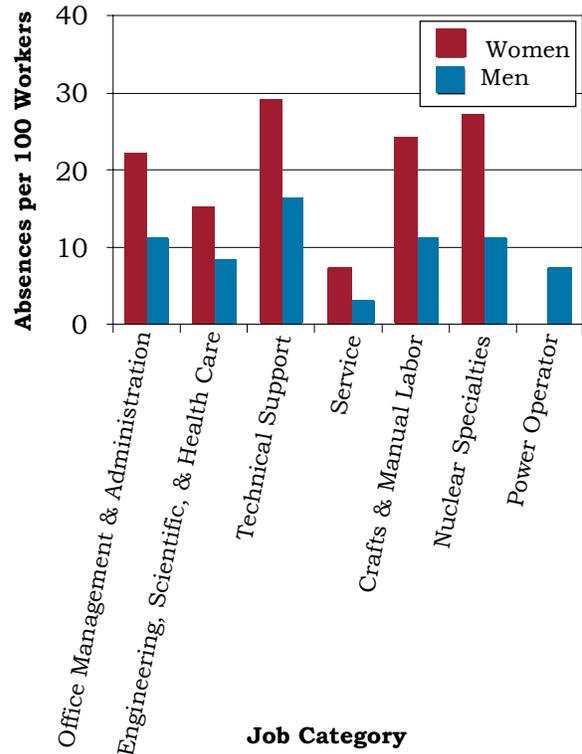
**Figure 4. Number of Days Absent by Gender and Age**

Gender	Age	Number of Absences	Number of Days Absent	Average Number of Days Absent
Women	16 - 29	18	288	16
	30 - 39	240	5,216	22
	40 - 49	359	8,759	24
	50 +	165	4,399	27
	Total	782	18,662	24
Men	16 - 29	28	388	14
	30 - 39	272	5,088	19
	40 - 49	544	10,623	20
	50 +	363	8,141	22
	Total	1,207	24,240	20

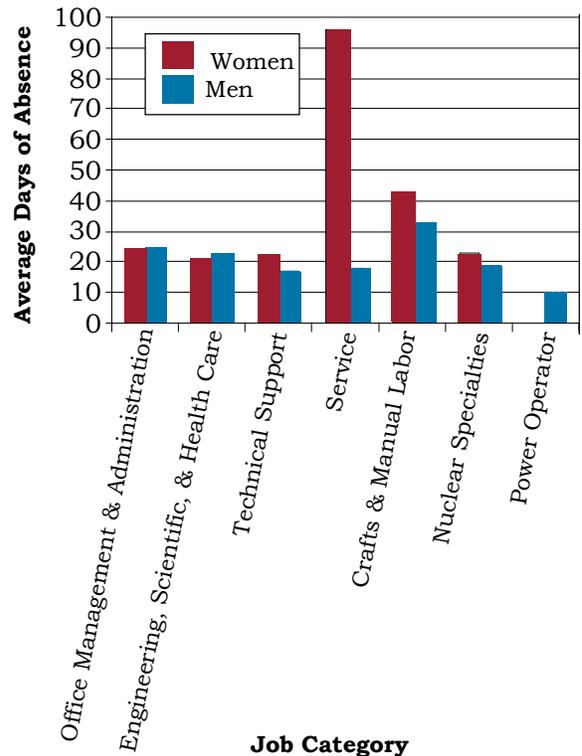
The rate of 5-day absences due to illness or injury varied by job category for women and men as shown in Figure 5. Technical Support workers had the highest rate among male workers; Service workers had the lowest rate. Among women, Technical Support workers had the highest rate of 5-day absence. Women in the Power Operator group had the lowest rate, reporting no absences in 1999. Women in this group also reported no absences in 1998. With the exception of the Power Operators, women had at least one and a half times the rate of absence experienced by men across similar job categories.

The average duration of absence by job category and gender is shown in Figure 6. Women tended to have longer duration of absence than did men across similar job categories. Women in the Service group had the longest average number of days absent, based on two absences of 46 and 146 days. Among men, Crafts and Manual Laborers had the longest average duration of absence.

**Figure 5. Absence Rate by Job Category and Gender**



**Figure 6. Average Duration of Absence by Job Category and Gender**



## Diagnostic Categories

Epidemiologic surveillance monitors *all* illnesses and injuries among active workers because it is not always possible to determine which health effects are due to occupational exposures and which ones are due to other causes. Most illness and injury diagnoses were reported to the occupational medicine clinic by workers who required return-to-work clearances. An absence due to illness or injury may involve more than one diagnosis, and epidemiologic surveillance includes all reported diagnoses. In addition, the OSHA 200 Log provides information on recorded occupational injuries and illnesses whether or not they involve absences.

This report organizes illness and injury categories based on a standard reference, the *International Classification of Diseases, 9<sup>th</sup> Revision, Clinical Modification* (ICD-9-CM). This reference is used to classify health events for statistical purposes. You can find specific health conditions in the Explanation of Diagnostic Categories in the back of this report.

The number of reported diagnoses categorized according to the ICD-9-CM and number of lost calendar days are presented in Figure 7. Please note that the number of days absent is counted more than once when an absence involves multiple diagnoses from different diagnostic categories. Women reported 1,136 diagnoses and men reported 1,626 diagnoses in 1999. The more frequently reported diagnoses were similar for women and men. Almost twice as many respiratory diagnoses were reported in 1999 as in 1998.

Women in the work force lost 18,662 calendar days due to injury and illness.

**Figure 7. Number of Diagnoses and Lost Calendar Days by Diagnostic Category (Categorized by ICD-9-CM) and Gender**

Diagnostic Category	Women		Men	
	Number of Diagnoses	Number of Lost Calendar Days	Number of Diagnoses	Number of Lost Calendar Days
Benign Growths	49	1,946	23	638
Blood	12	610	3	66
Cancer	20	1,255	27	1,545
Digestive	127	3,469	183	3,386
Endocrine / Metabolic	29	910	32	847
Existing Birth Condition	4	80	5	42
Genitourinary	122	3,748	75	1,058
Heart / Circulatory	43	1,434	138	2,916
Infections / Parasites	40	432	71	705
Injury	74	1,819	158	3,543
Miscarriage	12	172	NA	NA
Muscles & Skeleton	125	3,425	230	7,096
Nervous System	62	1,005	92	1,634
Psychological	27	784	32	895
Respiratory	289	2,797	410	3,535
Skin	6	98	18	223
Unspecified Symptoms	95	1,310	129	2,039

Note: Lost calendar days for each absence are counted more than once when multiple diagnoses occur in different diagnostic categories for the same absence.

Respiratory conditions (25 percent), muscles and skeleton conditions (11 percent), digestive disorders (11 percent), and genitourinary conditions (11 percent) accounted for 58 percent of all reported diagnoses.

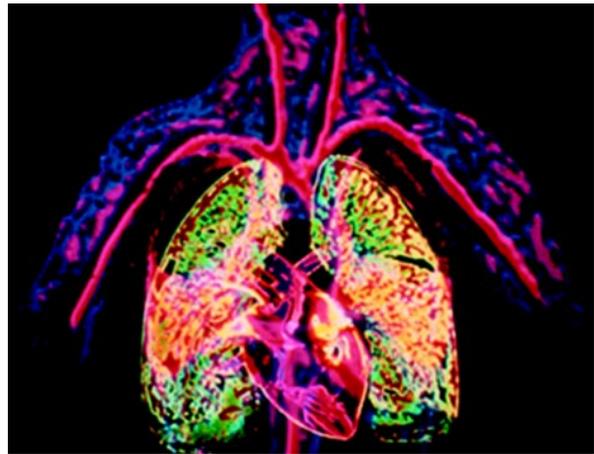
Thirty-four percent of the respiratory conditions were reported as acute respiratory infections, 24 percent as pneumonia and flu, 22 percent as other upper respiratory conditions (primarily sinusitis), and 6 percent as chronic conditions (primarily asthma). Twelve percent of the diagnoses involved bronchitis, unspecified as to whether chronic or acute. Back pain and disk injuries made up 61 percent of muscles and skeleton conditions, followed by arthritis (18 percent) and rheumatism (14 percent). Conditions of the gallbladder and pancreas (28 percent) and gastritis and ulcers (20 percent) were the most frequently reported digestive conditions. As in 1997 and 1998, the majority of the genitourinary conditions (79 percent) were due to disorders of the female breast and reproductive tract. The more frequently reported diagnoses were fairly consistent among the various age groups.



Men lost 24,240 calendar days due to injury and illness. Fifty percent of their reported diagnoses involved respiratory conditions (25 percent), muscles and skeleton conditions (14 percent), and digestive disorders (11 percent). Pneumonia and influenza accounted for 38 percent of the respiratory conditions, followed by acute respiratory infections (27 percent) and other upper respiratory infections (18 percent). Sixty-five percent of the muscles and skeleton diagnoses were back problems, 18 percent were arthritis, and 12 percent were rheumatism. Frequently reported digestive conditions included hernias (37 percent), enteritis and colitis (14 percent), and other digestive conditions (pri-

marily gallbladder disorders, 16 percent).

Conditions affecting the muscles and skeleton and respiratory system were among the most frequently reported in all age groups among men. Among men aged 50 years and older, heart/circulatory conditions were the second most frequently reported diagnoses. In this age group, 60 men reported 74 diagnoses. Forty-two of these diagnoses (57



percent) were for high blood pressure and ischemic heart disease (restricted blood flow to an artery).

Figure 8 shows the frequency of reported diagnoses by job category for women and men. The types of diagnoses did not vary significantly by job category. Among women, conditions affecting the muscles and skeleton, respiratory diagnoses, and digestive diseases were common in most job categories. Few diagnoses were reported among women in the Service group. Female Power Operators did not report any diagnoses in 1999. Among men, conditions affecting the muscles and skeleton, respiratory diseases, digestive disorders, and injuries appeared frequently in most job categories. Heart/circulatory diagnoses were also frequently reported by men in the Engineering, Scientific, and Health Care and the Service job categories.

**Figure 8. Most Frequently Reported Diagnoses by Job Category and Gender**

Job Category	Men	Women
Office Management & Administration	Respiratory (63) Muscles & Skeleton (38) Injury (29) Digestive (22)	Respiratory (116) Genitourinary (55) Muscles & Skeleton (54) Digestive (51)
Engineering, Scientific, & Health Care	Respiratory (35) Heart/Circulatory (33) Muscles & Skeleton (30)	Respiratory (12) Digestive (10) Muscles & Skeleton (7)
Technical Support	Respiratory (276) Muscles & Skeleton (126) Digestive (114)	Respiratory (141) Unspecified Symptoms (58) Digestive (56)
Service	Heart/Circulatory (3) Injury (1)	Digestive (2) Muscles & Skeleton (1) Psychological (1)
Crafts & Manual Labor	Muscles & Skeleton (24) Respiratory (21) Digestive (15) Injury (15)	Benign Growths (5) Injury (5) Digestive (4) Muscles & Skeleton (4) Respiratory (4) Unspecified Symptoms (4)
Nuclear Specialties	Respiratory (13) Muscles & Skeleton (10) Nervous System (7)	Respiratory (16) Genitourinary (7) Digestive (4) Muscles & Skeleton (4)
Power Operator	Injury (2) Muscles & Skeleton (2) Respiratory (2) Endocrine/Metabolic (1) Nervous System (1)	None

Note: Numbers in parentheses represent the number of reported diagnoses.

## Rates of Disease Occurrence

**A Word about Rates:** The previous section considered the **number** of absences and health conditions among various worker groups. For example, Figure 7 shows that men reported 230 and women reported 125 diagnoses involving the muscles and skeleton in 1999. Men, therefore, reported almost twice as many muscles and skeleton conditions as women. As there are almost three times as many men as there are women at Savannah River Site, it seems reasonable to expect more muscles and skeleton diagnoses among men than women. Does this mean that men were at greater risk of muscles and skeleton conditions compared with women in 1999? To correctly answer the question, the total number of men and women in the work force must be considered. To compare risk among men and women, it is necessary to calculate the muscles and skeleton diagnosis rate for each gender. Rates are calculated by dividing the number of muscles and skeleton diagnoses in a given gender by the total number of employees of that gender. Multiply this number by 1,000 to get the diagnosis rate per 1,000 workers. For example:

$$\begin{aligned} &230 \text{ muscles \& skeleton diagnoses} \\ &\div 9,518 \text{ men} = .024 \times 1,000 \\ &= 24 \text{ muscles \& skeleton diagnoses} \\ &\text{per 1,000 men} \end{aligned}$$

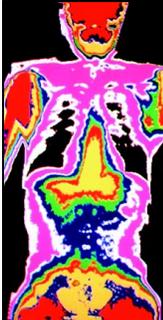
$$\begin{aligned} &125 \text{ muscles \& skeleton diagnoses} \\ &\div 3,302 \text{ women} = .038 \times 1,000 \\ &= 38 \text{ muscles \& skeleton diagnoses} \\ &\text{per 1,000 women} \end{aligned}$$

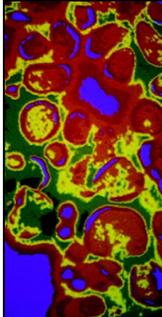
Comparing these rates shows that, despite the larger number of muscles and skeleton diagnoses among men, the *rate* of reported muscles and skeleton diagnoses was over one and a half times higher for women than for men. These rates are called **crude rates** because they do not account for possible differences between men and women in factors such as age that might affect the individual's risk of having a muscles and skeleton condition. Because age is so strongly related to the risk of disease and injury, epidemiologists almost always take age into account when comparing groups. This is done by using age-specific categories or by statistical methods of adjustment.

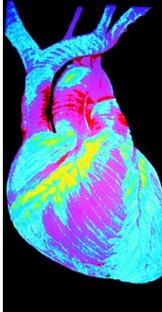
The diagnosis rate is the number of reported occurrences of a given disease or health condition observed over the course of a year per 1,000 workers at risk of getting that condition (see shaded box). One health condition, arthritis for example, may result in several 5-day absences over a year. Conversely, one 5-day absence may be associated with multiple diagnoses (e.g., the flu and a sprained wrist).

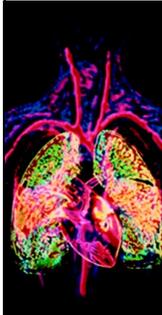
In the following set of analyses, the four age groups used previously were collapsed into two groups, workers less than 50 years of age and those 50 or older (Figure 9). These groups were collapsed to ensure that the number of diagnoses in each group would be large enough to analyze. In addition, the seven job categories were combined into five larger groups. Five groups of diagnoses of particular interest to workers are presented in Figure 9: all illnesses and injuries combined, cancer, heart/circulatory system, respiratory system, and injury. Additional information about 17 other disease groups was analyzed and can be found in the Supporting Tables.

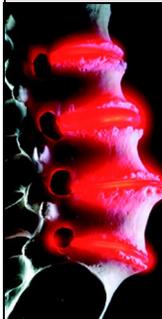
**Figure 9. Illness and Injury Rates by Job Category, Gender, and Age**

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	150	273
		50+	184	366
	Engineering, Scientific, & Health Care	<50	75	181
		50+	167	296
	Technical Support	<50	202	445
		50+	265	442
	Service/Crafts & Manual Labor	<50	119	254
		50+	204	619
	Nuclear Specialties/Power Operator	<50	146	382
		50+	109	313

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	1	4
		50+	11	17
	Engineering, Scientific, & Health Care	<50	0	0
		50+	8	0
	Technical Support	<50	2	5
		50+	7	6
	Service/Crafts & Manual Labor	<50	1	0
		50+	9	0
	Nuclear Specialties/Power Operator	<50	0	18
		50+	0	63

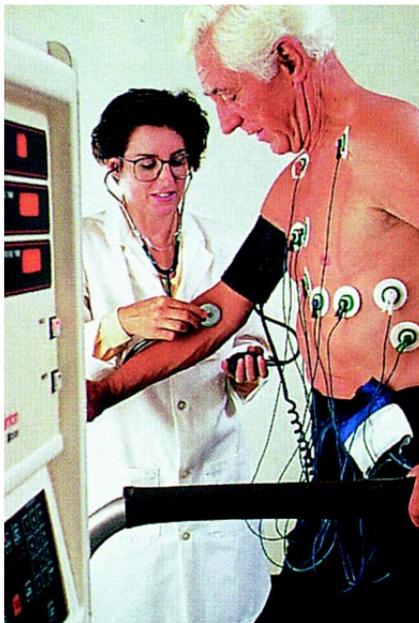
Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	7	9
		50+	20	30
	Engineering, Scientific, & Health Care	<50	6	4
		50+	38	0
	Technical Support	<50	11	10
		50+	30	36
	Service/Crafts & Manual Labor	<50	9	26
		50+	46	0
	Nuclear Specialties/Power Operator	<50	0	9
		50+	22	0

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	49	64
		50+	22	108
	Engineering, Scientific, & Health Care	<50	15	40
		50+	22	74
	Technical Support	<50	58	121
		50+	73	97
	Service/Crafts & Manual Labor	<50	19	35
		50+	37	0
	Nuclear Specialties/Power Operator	<50	38	127
		50+	22	125

Diagnostic Category	Rate per 1,000			
	Job Category	Age	Men	Women
	Office Management & Administration	<50	15	17
		50+	26	14
	Engineering, Scientific, & Health Care	<50	12	16
		50+	8	0
	Technical Support	<50	18	32
		50+	20	30
	Service/Crafts & Manual Labor	<50	16	26
		50+	23	95
	Nuclear Specialties/Power Operator	<50	22	9
		50+	0	0

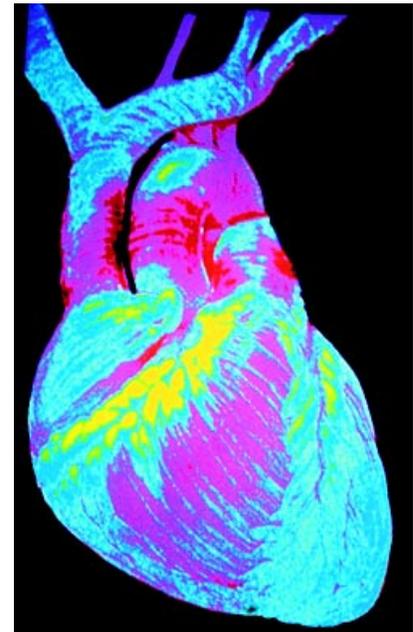
Among women, workers aged 50 years and older tended to have higher rates of all illnesses and injuries combined than did younger workers. Rates were higher for women than for men in the same job category, regardless of age. The rates for all illnesses and injuries combined were greater for men aged 50 and older compared with younger men with one exception. Among men in the Nuclear Specialties/Power Operator category, younger workers had higher rates than older workers.

Cancer rates presented in this report are based on reported 5-day absences due to cancer. A worker may experience several periods of absence from one cancer diagnosis due to medical complications or treatment. Each absence results in the reporting of a cancer diagnosis; however, it does not imply that this is a new cancer. The cancer rates in this report are *not* comparable to the *incidence* rates frequently published in many articles on cancer with which you may be familiar. Incident cancer rates are based on the number of new cancer cases diagnosed within a given time, usually 1 year.



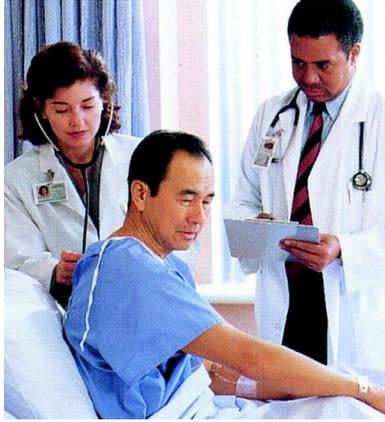
The likelihood that an individual in the United States will develop cancer

increases with age. Among men and women, our data reflect this observation, with higher rates noted among workers aged 50 or older. Forty-three 5-day absences related to cancer were reported, 27 diagnoses among 26 men and 20 diagnoses among 13 women. Two men who reported cancer in 1999 reported cancer in the time period 1994-1998. One of the men reported skin cancer in 1997 and 1999; the other reported leukemia in 1998 and 1999. None of the women who reported cancer in 1999 reported cancer in the 1994-1998 time period. We noted no apparent relationships between any specific type of cancer and a particular job category.



Men in the older age group had higher heart/circulatory disease rates than did younger men. We saw no consistent relationship with age among female workers. Technical Support workers had the highest rate among women. Service/Craft and Manual Labor workers had the highest rate among men. Among men, no specific job category had an exceptional diagnosis rate. Fifty-one percent of the diagnoses reported by women and 56 percent of those reported by men involved high blood pressure or ischemic heart disease (restricted blood flow through an artery).

Women had higher rates of respiratory disease than did men in all job categories and age groups except one. We saw no relationship between age and respiratory disease among women or



men. The highest respiratory diagnosis rates were noted for the Nuclear Specialties/Power Operator job category among women and the Technical Support job category among men. Compared with other job categories, Technical Support workers were 90 percent more likely to report a respiratory condition.

Women younger than age 50 tended to have a higher injury rate than did older women. The Service/Crafts and Manual Labor workers had the highest rate of injury among men and women. Compared with other job categories, Technical Support workers were 40 percent more likely to report an injury.

The risk of illness and injury among workers classified in one job category was compared with that of workers in the remaining six job categories. Technical Support workers were at higher risk than were other groups for a variety of diagnoses. Compared with other workers, Technical Support workers were about 40 percent more likely to report an illness or injury. Workers in this job category were 70 percent more likely to report a condition of the nervous system and sense organs, 50 percent more likely to report digestive disorders, and 140 percent more likely to report ill-defined conditions. Crafts and Manual Labor

workers were over 5 times more likely than other workers to report a disorder of the blood or blood-forming organs and 6 times more likely to report an upper limb fracture compared with workers in other job categories.

## Time Trends

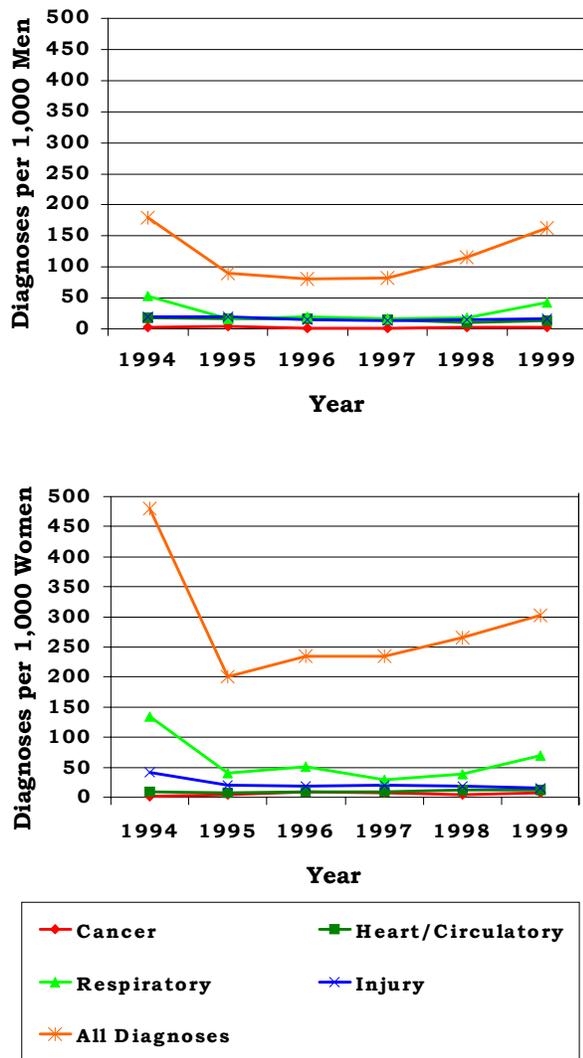
### Why Are Rates Age-Adjusted?

The injury and illness rates in this section of the report are **age-adjusted**. Differences in the age composition between groups of workers are taken into consideration in the analyses and one rate is calculated for an entire group. This allows us to make comparisons between groups with different age distributions. Age-adjusted rates are calculated using the age distribution of the 1970 United States population as a reference.

Age-adjusted rates for selected illness and injury categories are presented in Figure 10. It is important to note that the age-adjusted rates for the year 1994 presented in this report differ from those reported in the *1994 Annual Epidemiologic Surveillance Report* due to the exclusion of absences resulting from maternity leave.

The age-adjusted rates for all illness and injury categories combined declined substantially from 1994 to 1995 among both women and men, and the overall rates changed little from 1995 through 1997. We noted an increase among women and men from 1997 to 1999. Among women, the heart/circulatory disease rate leveled off in 1999 after an increase in 1998.

**Figure 10. Age-Adjusted Rates for Selected Diagnostic Categories for Men and Women from 1994 to 1999**



Respiratory disease rates, which declined sharply from 1994 to 1995 and displayed almost no change thereafter, showed a sharp increase in 1999. Rates for injuries and cancer all remained low throughout the 6-year period. Among men, the rate of all diagnoses combined reflected the same trend as that of women, but the rate among men was substantially lower than that of women over the 6 years. Respiratory disease rates also increased sharply in 1999 among men. Rates for injury,

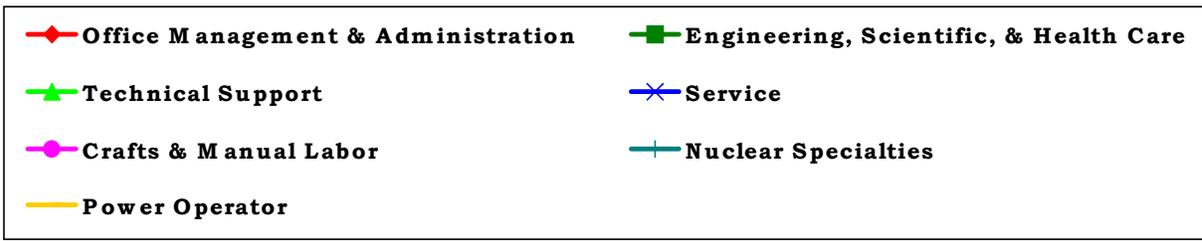
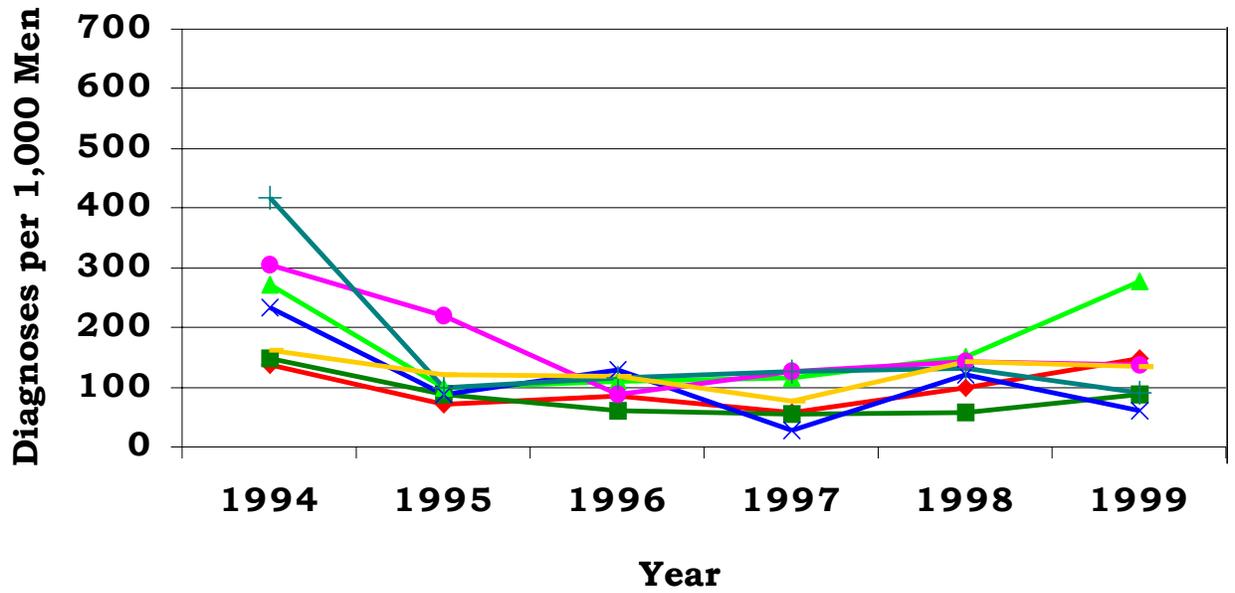
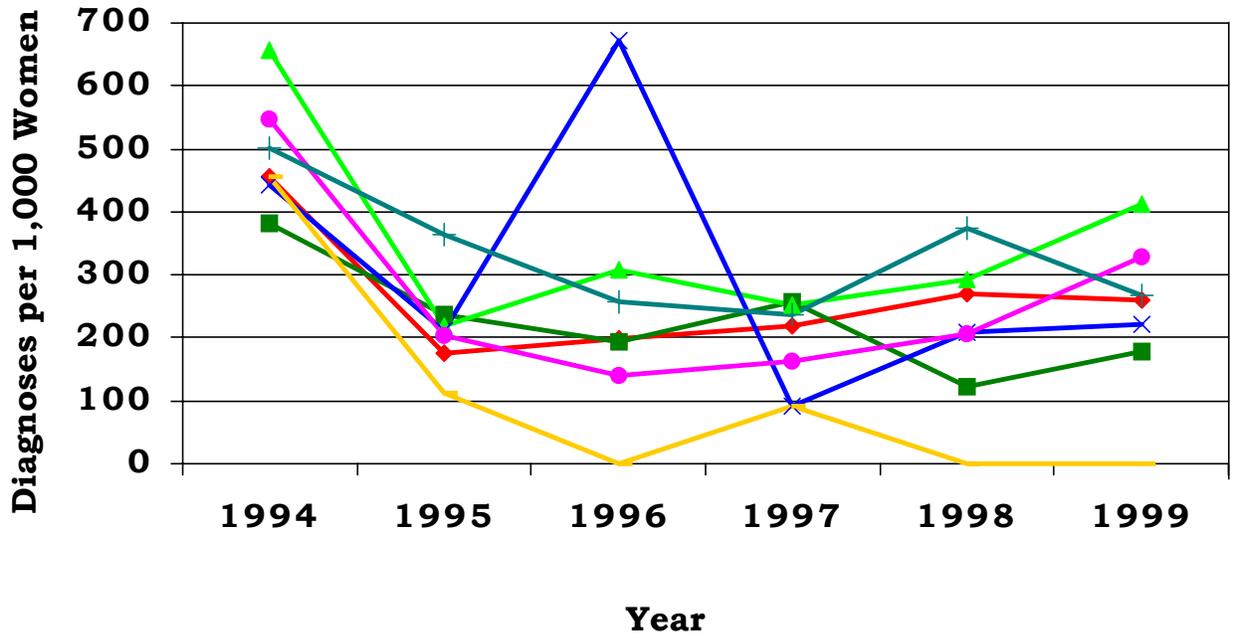
heart/circulatory disease, and cancer remained low among men throughout the period.

For both women and men, the rate for all illnesses and injuries combined, which declined from 1995 through 1997 and increased in most job categories in 1998, continued to increase in about half of the job categories in 1999 (Figure 11). In all job categories, the overall rate declined substantially between 1994 and 1995. The increase in the rate from



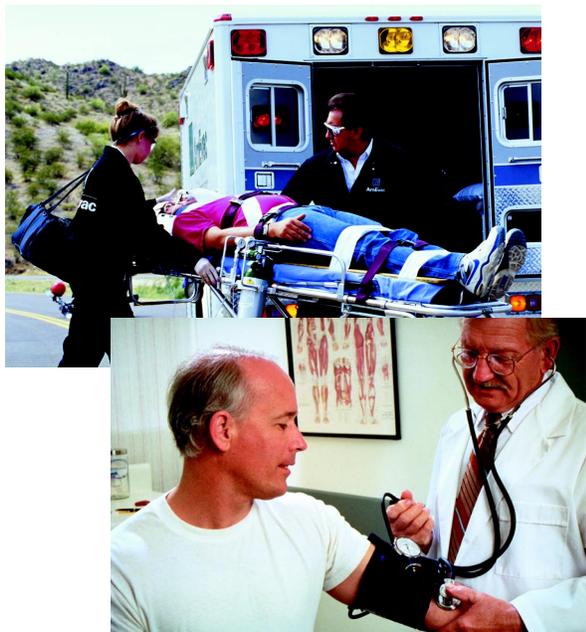
1997 to 1998 continued in 1999 among men in the Office Management and Administration and Technical Support groups, and among women in Technical Support, Service, and Craft and Manual Labor groups. Among both men and women, the rate in the Engineering, Scientific, and Health Care group increased in 1999 after a decline in the rate among women and no change in the rate among men from 1997 to 1998. The recent increases appear to be due in part to an increase in the number of reported respiratory diagnoses, with the exception of women in the Crafts and Manual Labor group and both men and women in the Engineering, Scientific, and Health Care category. For women in the Crafts and Manual Labor group, part of the increase was due to an increase in injuries. No injuries were reported in 1998, but five injuries were reported in 1999. Among female Engineering, Scientific, and Health Care workers, there was an increase in digestive conditions. The increase among male workers was due to an increase in reported diagnoses of all kinds.

**Figure 11. Age-Adjusted Rates for All Diagnoses Combined Among Women and Men by Job Category from 1994 to 1999**



## Sentinel Health Events for Occupations

A sentinel health event for occupations (SHEO) is a disease, disability, or death that is likely to be occupationally related. Its occurrence may serve as a warning signal that materials substitution, engineering control, personal protection, or medical care may be required to reduce the risk of injury or illness among the work force. Sixty-four medical conditions associated with workplace exposures from studies of many different industries have been



identified as sentinel health events. Although sentinel health events may indicate an occupational exposure, many may result from non-occupational exposures. Due to this uncertainty, sentinel health events are assessed in two categories:

*Definite Sentinel Health Events:* Diseases that are unlikely to occur in the absence of an occupational exposure. Asbestosis, a lung disease resulting from exposure to asbestos, is an example.

### *Possible Sentinel Health Events:*

Conditions such as lung cancer or carpal tunnel syndrome may or may not be related to occupation. Detailed occupational and non-occupational information is required to determine the work-relatedness of the illness. For example, lung cancer may result from asbestos exposure or smoking. Carpal tunnel syndrome may result from a job requiring typing or from a hobby such as playing the piano.

Five *definite* sentinel health events reported by 4 women and 1 man were identified in 1999 (Figure 12). Diagnoses included two sprains and strains of the back, two back/disc disorders, two fractures (vertebra and leg), and one knee dislocation. Two events were caused by falls, two events involved overexertion and strenuous movements, and one event resulted from a motor vehicle accident. Forty-two of 2,762 (2 percent) diagnoses were identified as *possible* sentinel health events. Thirty of the 42 diagnoses were carpal tunnel syndrome, reported by 24 workers and resulting in 414 lost calendar days. Half of the workers reporting carpal tunnel syndrome worked in the Technical Support group.

**Figure 12. Characteristics of SHEOs by Gender**

	Total Number of SHEO Diagnoses		Total Number of Days Absent	
	Men	Women	Men	Women
Definite	1	4	7	204
Possible	26	16	536	406
Total	27	20	543	610

## Disabilities Among Active Workers

Less than 1 percent of the work force (36/12,820 workers) was on long-term disability in 1999. The percentage on disability was about the same for women and men. Among these 36 workers, one-third (12) were on disability for muscles and skeleton disorders (9 back problems; 3 joint disorders); 6 each for cancer (2 lung; 2 prostate; 1 colon; 1 gallbladder) and nervous system problems; 4 heart/circulatory problems; 3 endocrine/metabolic disorders; 2 multiple injuries (1 caused by motor vehicle accident; 1 unspecified); 2 psychological disorders; and 1 respiratory disorder. Fifty-three percent (19/36) of the disabilities occurred among Technical Support workers, and half of the workers on disability were aged 50+.

The disabled workers were excluded from other analyses in this report because they were not actively working. Three workers who went on disability in 1999 due to cancer died before the end of the year.

## Deaths Among Active Workers

Thirteen deaths occurred among SRS workers in 1999. The causes of death included four cancers; three heart attacks, two heart/circulatory disorders; two self-inflicted gunshot wounds; and one from injuries sustained in a motor vehicle accident. The cause of one death was not known.

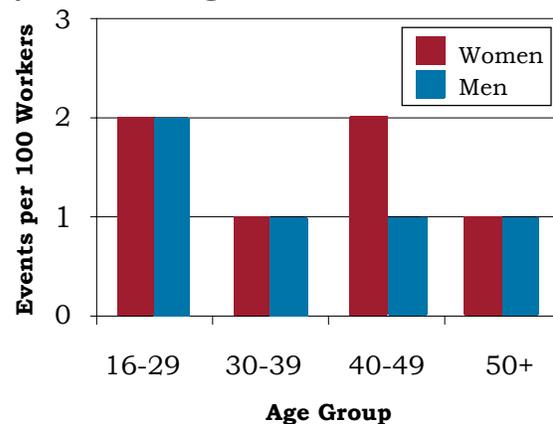
## OSHA-Recordable Events

The Occupational Safety and Health Administration (OSHA) requires employers to maintain a record of occupational injuries and illnesses that have occurred among employees and to make that information available to OSHA upon request. Employers maintain the infor-

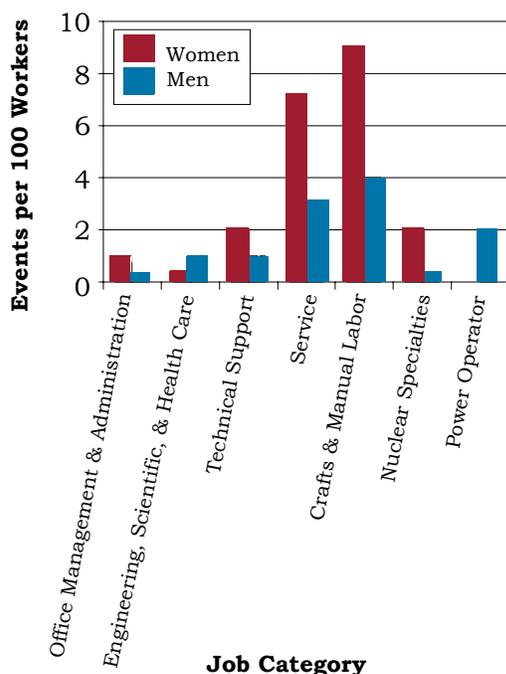
mation from these OSHA-recordable events in the OSHA 200 Log. OSHA-recordable events differ from health events captured through return-to-work clearances in at least two important respects: 1) they do not necessarily result in days lost from work, and 2) they are usually accompanied by a specific determination that they are work-related.

The distribution of OSHA events by age and gender is shown in Figure 13. Forty-eight women and 104 men had at least one OSHA-recordable event noted. The overall rate of OSHA-recordable events was similar for women (2 per 100) and men (1 per 100) and did not differ significantly by age group.

**Figure 13. OSHA-Recordable Events by Gender and Age**



The rates of OSHA-recordable events by job category and gender are shown in Figure 14. Overall, the Crafts and Manual Labor group had the highest percentage (5 percent) of workers reporting an OSHA event, and the rate of OSHA-recordable events was substantially higher for both women and men in the Service and Crafts and Manual Labor groups than in other job categories. Women had a higher rate of OSHA events than did men in the Office Management and Administration, Technical Support, Service, Crafts and Manual

**Figure 14. OSHA-Recordable Events by Job Category and Gender**

Labor, and Nuclear Specialties groups. Among men, the highest rate of OSHA events occurred among Crafts and Manual Labor workers (4 events per 100 workers).

A total of 919 lost/restricted workdays were reported for women, a 31 percent increase over the 1998 total. Men experienced 868 lost/restricted workdays, a 30 percent decrease from the 1998 total. Overall, the average number of workdays lost or with restricted activity due to an OSHA event was higher for women (18 days) than for men (8 days). Workers aged 16-29 had the highest average number of lost/restricted workdays (15 days). Overall, Nuclear Specialties workers reported the highest average number of lost/restricted workdays due to an OSHA event (90 days). Women in the Nuclear Specialties category averaged 135 days of lost or restricted workdays, based on two OSHA events. One woman reported a lumbar back sprain/strain and bruises to the elbow and lower leg. This event accumulated 97 lost workdays and 172 restricted workdays.

## Diagnostic and Accident Categories for OSHA-Recordable Events

One hundred fifty-seven OSHA events were recorded on the OSHA 200 Logs, involving 79 diagnoses among women and 148 diagnoses among men (Figure 15). Fifty-six percent of the diagnoses among women involved injuries, of which bruises were the most common type (30 percent). Among men, injuries accounted for 66 percent of the diagnoses reported, primarily due to sprains and strains (26 percent) and open wounds (26 percent). Three women and two men reported carpal tunnel syndrome, with each event resulting in 1 restricted workday.

**Figure 15. OSHA-Recordable Diagnoses by Diagnostic Category and Gender**

Diagnostic Category	Gender	
	Women	Men
Digestive	0	3
Endocrine/Metabolic	1	0
Muscles & Skeleton	14	20
Nervous System	4	5
Psychological	0	1
Respiratory	4	4
Skin	3	3
Unspecified Symptoms	9	15
Injury	44	97
Fractures - Neck, Trunk	1	0
Fractures - Upper Limb	1	3
Fractures - Lower Limb	3	3
Dislocations	0	1
Back Sprains & Strains	6	17
Other Sprains & Strains	4	8
Open Wounds - Head, Neck, Trunk	0	6
Open Wounds - Upper Limb	2	19
Superficial Injuries	3	9
Bruises	13	7
Foreign Bodies Entering Orifice	0	3
Burns	3	12
Adverse Reactions to Non-Medical Substances	6	5
Adverse Reactions to External Causes	2	2
Complications of Surgical/Medical Care	0	2

Only 18 percent (28) of the 157 OSHA events were described as an accident in the OSHA logs (Figure 16). The majority of these 28 events were described as "poisoning-non-medicinal" among women (56 percent) and submersion/suffocation/foreign bodies (26 percent) among men.

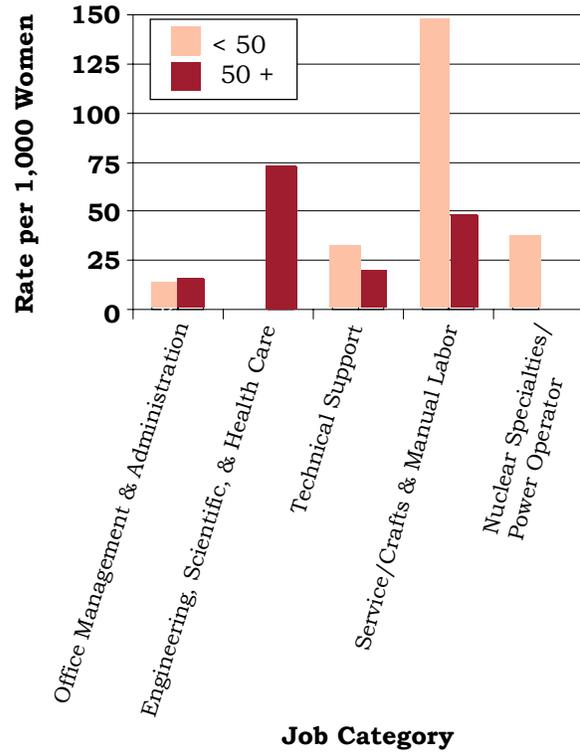
**Figure 16. OSHA-Recordable Accidents by Type and Gender**

Accident Category	Gender	
	Women	Men
	Number of Accidents	Number of Accidents
Poisoning - Non-Medicinal	5	3
Surgical & Medical Procedures	0	2
Natural/ Environmental Factors	3	4
Submersion/ Suffocation/ Foreign Bodies	0	5
Drug Reaction	0	1
Other Accidents	1	4
Hot, Corrosive, or Caustic Material/ Steam	0	4
Repetitive Trauma	1	0
Total	9	19

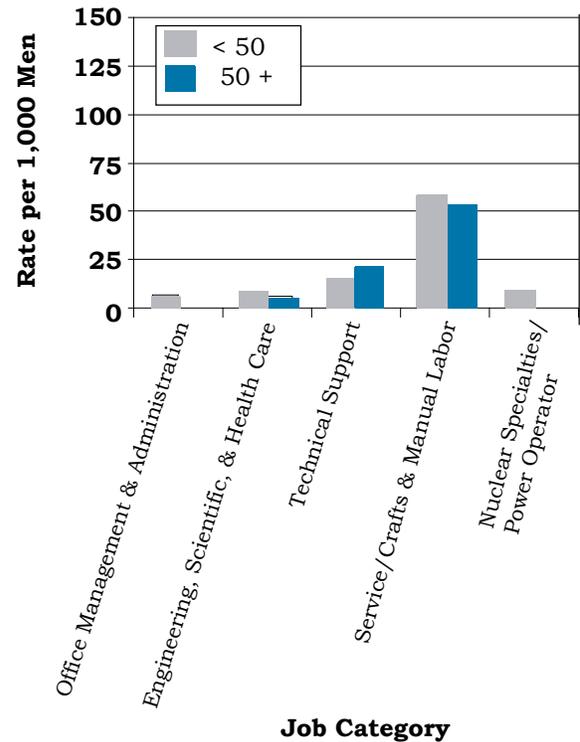
### Rates of OSHA-Recordable Events

The rates of all diagnoses combined for OSHA-recordable events by age group, job category, and gender are shown in Figures 17 and 18. Women tended to have higher rates than men in most age/job categories, but we saw no apparent relationship between age and the rate of OSHA-recordable events among women. Among men, younger

**Figure 17. OSHA-Recordable Rates by Age and Job Categories Among Women, All Diagnoses Combined**



**Figure 18. OSHA-Recordable Rates by Age and Job Categories Among Men, All Diagnoses Combined**



workers tended to have higher rates. The OSHA-recordable rates among women and men were highest among Service/Crafts and Manual Labor workers. Most of the OSHA diagnoses involved injuries. When the rate for OSHA-recordable injuries was considered separately, the same job categories had the highest rates for both women and men. Service/Crafts and Manual Labor workers accounted for 8 percent of the work force but 32 percent of the OSHA-recordable events.

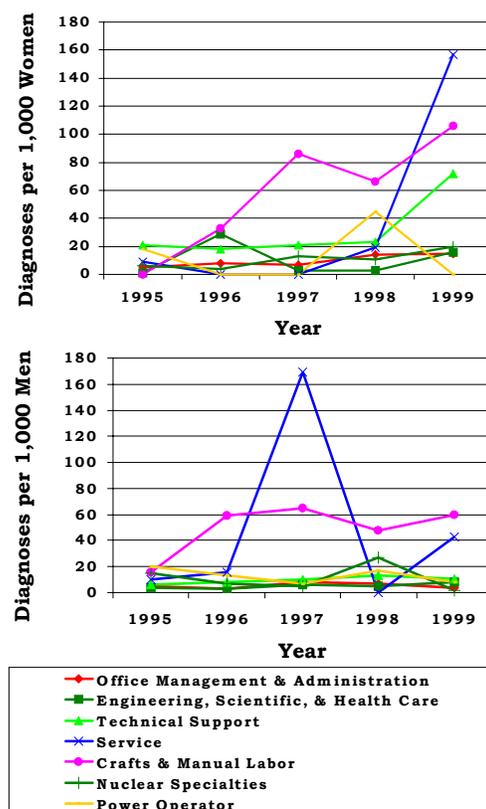
Crafts and Manual Laborers were at higher risk of sprains and strains other than the back (15 times); back sprains and strains (8 times); open wounds to the upper limb (4 times); superficial injuries (12 times); bruises (13 times); and burns (6 times) than were other workers. They were also 6 times more likely to report symptoms, signs, and ill-defined conditions. Service workers showed a 16 times higher risk of toxic effects to non-medicinal substances. In addition, Power Operators were over 18 times more likely as other workers to report a superficial injury.

### Time Trends for OSHA-Recordable Events

Savannah River Site's OSHA-recordable data were made available for Epidemiologic Surveillance analysis beginning in 1995. The age-adjusted rates for all diagnostic categories combined from 1995 to 1999 by job category and gender are shown in Figure 19. While minor fluctuations in rates were numerous during the 5-year period, the overall rates for OSHA-recordable events among men did not change greatly for the majority of job categories. The rate increase shown by Crafts and Manual Labor workers from 1995 to 1997 began to decline in 1998 but rose again in 1999 for both men and women. The small but consistent increase in rates from 1995 to 1998 for men and

women Technical Support workers did not continue in 1999 for men. Women Technical Support workers had a significant rate increase in 1999, which was not the result of an increase in injuries. Women experienced an increase in the number of illness diagnoses, four of which resulted from repetitive motion. Six other diagnoses resulted from exposure to external agents. The dramatic increase in the OSHA-recordable rate among male Service workers observed from 1996 to 1997 has not continued. The Service workers are a relatively small group (80 men in 1999), and small changes in the number of events can produce substantial changes in rates from year to year. Despite numerous fluctuations in rates, we saw no indication of a systematic trend in OSHA-recordable injury rates in any of the job categories over the 5-year period.

**Figure 19. Age-Adjusted Rates for All OSHA-Recordable Diagnoses Combined Among Women and Men by Job Category from 1995 to 1999**



## Glossary

**Adjustment:** A mathematical procedure for rates in which the effects of differences of a characteristic (such as age or gender) between groups have been removed. The purpose of adjustment is to allow comparisons between two or more groups with the effect of the differences for the characteristic removed.

**Age-Adjusted Rate:** A rate that has been mathematically adjusted to account for the effects of differences in the age composition between groups.

**Age-Specific Rate:** A rate that is calculated for a specific age group (e.g., 16 to 29 years old). Only people in the specific age group are included in the calculation of the rate.

**Confidence Interval:** A range of values determined by the degree of random variability in the data. The width of the confidence interval is affected by the size of the group being studied and how often the event whose true value is sought occurs. Generally, as the size of the group or the frequency of the event increases, the width of the confidence interval decreases. The level of confidence, for example a 95 percent confidence level, indicates the percentage (e.g., 95 percent) of time that the true value is expected to fall within the confidence interval if the mathematical procedure is repeated 100 times.

**Demographics:** Characteristics of human populations related to their size, density, age distribution, and vital status.

**Diagnosis (diagnoses):** Identification of a disease or health condition from signs and symptoms.

**Diagnosis Rate:** The number of occurrences of a given disease or health condition observed during a given time period per the number of workers at risk of getting that disease during that time period. It is usually multiplied by 100 or 1,000 to produce a rate expressed as a convenient number.

**Diagnostic Category:** A particular type of disease, a group of related health conditions, or diseases that all affect the same organ system.

**Epidemiologic Surveillance:** The ongoing evaluation of the health of a human population which is based on the collection and interpretation of demographic and health information for that population.

**Epidemiology:** The study of the distribution and determinants of diseases and health conditions in human populations.

**ICD-9-CM Code:** An abbreviation for the *International Classification of Diseases, 9th Revision, Clinical Modification*. An internationally accepted standardized system for the classification of disease and health data collected from medical records.

**OSHA:** An acronym for the Occupational Safety and Health Administration.

**OSHA Event:** An abbreviation used throughout this report for an OSHA-recordable event.

**OSHA-Recordable Event:** An accident that occurs on the job and involves fatalities (regardless of time between injury and death), time lost from work, transfer of employment, medical treatment other than first aid, loss of consciousness, or restriction of work or motion. Also included is any diagnosed occupational health event reported to the employer that is neither fatal nor results in workdays lost. By law, these events are recordable in the OSHA 200 Log.

**Person-Year:** A unit of measurement combining the number of people being studied with the time that each was observed equivalent to one person followed for one year. For example, 5 persons followed for one year contribute five person-years, as do 10 people each followed for half a year.

**Relative Risk:** The ratio of the occurrence of a disease or health condition in one group compared to the rate of occurrence of that same disease or health condition in another group.

### Explanation of Diagnostic Categories

Throughout this report, health conditions have been grouped into a number of diagnostic categories which come from the *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM). For the text of this report the categories are abbreviated to make the report easier to read. The following table lists the categories in alphabetic order.

Abbreviated Categories Used in the Annual Report	ICD-9-CM Codes
Benign Growths	210-229 235-239
Blood	280-289
Cancer	140-208 230-234
Digestive	520-579
Endocrine / Metabolic	240-279
Existing Birth Conditions	740-759
Genitourinary	580-629
Heart / Circulatory	390-459
Infections / Parasites	001-139
Injury	800-999
Miscarriage	630-676
Muscles and Skeleton	710-739
Nervous System	320-389
Psychological	290-319
Respiratory	460-519
Skin	680-709
Unspecified Symptoms	780-799

## ICD-9-CM Codes

<b>All conditions</b>	001-V82	All reported health events
<b>Infectious and parasitic diseases</b>	001-139	Diseases caused by bacteria, viruses, and parasites
• Intestinal infections	001-009	Infections of the bowel or gut
• Tuberculosis	010-018	TB in the lungs and other organs
• Zoonotic bacterial diseases	020-027	Bacterial diseases that animals transmit to humans
• Other bacterial diseases	030-041	Whooping cough, diphtheria, strep throat, and gangrene
• Human Immunodeficiency Virus (HIV) infection	042	AIDS
• Poliomyelitis and other non-arthropod diseases of the central nervous system	045-049	Viral meningitis (swelling of the layers covering the brain and spinal cord); viral encephalitis (swelling of the brain); and polio
• Viral diseases accompanied by exanthem	050-057	Diseases accompanied by rashes or blisters like chickenpox, measles, shingles, and herpes
• Arthropod-borne viral diseases	060-066	Encephalitis (swelling of the brain) caused by bites from virus-carrying ticks or mosquitoes
• Other diseases caused by viruses and chlamydiae	070-079	Viral hepatitis, mumps, rabies, and mononucleosis
• Rickettsioses and other arthropod-borne diseases	080-088	Rocky Mountain spotted fever, malaria, and lyme disease
• Other spirochetal diseases	100-104	Trench mouth and Weil's disease (jaundice caused by coil-shaped bacteria)
• Mycoses	110-118	Athlete's foot; fungal infections of fingernails and toenails; and thrush
• Helminthiases	120-129	Pinworms, tapeworms, roundworms, whipworms

• Other infectious and parasitic diseases	130-136	Lice, chiggers, scabies, and mites
• Late effects of infectious or parasitic diseases	137-139	Side effects of TB, chickenpox, or polio even though the disease is no longer active
<b>Malignant neoplasms</b>	140-208, 230-234	All cancers, regardless of the part of the body affected
• Lip, oral cavity, and pharynx	140-149	Lip, mouth, throat, and tongue
• Digestive organs and peritoneum	150-159	Stomach, esophagus (tube that transports food to the stomach), intestines, colon, rectum, anus, liver, pancreas, and gallbladder
• Respiratory system and intrathoracic organs	160-165	Sinuses, throat, voice box, lungs, and heart
• Bone, connective tissue, skin, and breast	170-176	Bone, muscle, ligament, tendon, blood vessels, fat, skin, and breast
• Genitourinary organs	179-189	Kidney, bladder, and cervix, ovary, uterus, and prostate
• Other and unspecified sites	190-199	Eye, brain, and thyroid
• Lymphatic and hematopoietic tissue	200-208	Leukemia, lymphoma, Hodgkin's disease, multiple myeloma, lymphosarcoma, and reticulum cell sarcoma
• Carcinoma in situ	230-234	A cancer that is confined to the site of origin (has not spread to neighboring tissue)
<b>Benign neoplasms and neoplasms of uncertain behavior and unspecified nature</b>	210-229 235-239	Tumors that are not cancerous or do not exhibit cancerous behavior, regardless of the part of the body affected
<b>Endocrine, nutritional, and metabolic diseases and disorders of the immune system</b>	240-279	Diseases affecting the hormone secreting glands and organs. Overactive thyroid; underactive thyroid; vitamin deficiency; diabetes; gout; and problems affecting the antibody producing system
<b>Disorders of the blood and blood forming organs</b>	280-289	Anemia and hemophilia (excludes leukemia)

<b>Mental disorders</b>	290-319	Psychiatric diagnoses - Non-psychotic disorders: depression; anxiety, fear, and stress disorders; alcoholism; drug dependence; and eating disorders, such as anorexia; Psychotic disorders: dementia, schizophrenia, and manic depression
<b>Diseases of the nervous system and sense organs</b>	320-389	Huntington's chorea; Alzheimer's and Parkinson's disease; epilepsy; multiple sclerosis; migraine; diseases of the eye, such as cataract and glaucoma
• Inflammatory diseases of the central nervous system	320-326	Bacterial meningitis (swelling of the layers covering the brain and spine); bacterial encephalitis (swelling of the brain); and brain and spinal abscesses
• Hereditary and degenerative diseases of the central nervous system	330-337	Alzheimer's and Parkinson's disease, tremors, and Huntington's chorea
• Other disorders of the central nervous system	340-349	Multiple sclerosis (MS), cerebral palsy, epilepsy, and migraine
• Disorders of the peripheral nervous system	350-359	Nerve disorders of the face, carpal tunnel syndrome, muscular dystrophy
• Disorders of the eye	360-379	Inflammation and ulcers of the eye and eyelid; detached retina; pink eye; problems with tear ducts; glaucoma; and cataracts
• Diseases of the ear and mastoid process	380-389	Infections of the outer, middle, or inner ear; ringing of the ears; hearing loss
<b>Diseases of the circulatory system</b>	390-459	Rheumatic fever, heart murmurs, heart attacks, angina, hardening of the arteries, varicose veins, hemorrhoids, and phlebitis
• Acute rheumatic fever	390-392	High fever and joint pain with possible heart damage
• Chronic rheumatic heart disease	393-398	Long lasting swelling and damage to the heart which results from rheumatic fever
• Hypertensive disease	401-405	High blood pressure

- Ischemic heart disease (Restricted blood flow to the heart) 410-414 Heart attack and angina
  
- Diseases of pulmonary circulation 415-417 Blood clots in the lung and pulmonary aneurysm (bulge that develops in the wall of the pulmonary artery, which is the artery that carries blood to the lungs)
  
- Other forms of heart disease 420-429 Swelling of the inner lining, middle lining, or sac enclosing the heart; heart failure; and irregular heartbeat
  
- Cerebrovascular disease 430-438 Stroke, bleeding in the brain, and blockage or low blood flow in blood vessels of the brain
  
- Diseases of the arteries and capillaries 440-448 Hardening of the arteries; aneurysm (bulge that develops in the walls of arteries); and blood clots
  
- Diseases of the veins, lymphatics, and other circulatory system diseases 451-459 Phlebitis (swelling of a vein), thrombophlebitis (swelling of a vein which has a blood clot), varicose veins, and hemorrhoids
  
- Diseases of the respiratory system** 460-519 Colds, sinusitis, laryngitis, pneumonia, influenza, chronic bronchitis, asthma, and emphysema
  
- Acute respiratory infections 460-466 Colds, sore throat, sinus infections, swollen tonsils, and bronchitis
  
- Other diseases of the upper respiratory tract 470-478 Allergies, hay fever, sinus infections, bronchitis, and sore throat that continue for a long time
  
- Pneumonia and influenza 480-487 “The flu” and pneumonia caused by a bacteria or virus
  
- Chronic obstructive pulmonary diseases and allied conditions 490-496 Emphysema and asthma
  
- Pneumoconiosis and other lung diseases caused by external agents 500-508 Black lung; miners’ asthma; asbestosis; silicosis; berylliosis; and conditions caused by chemical fumes and vapors

- Other diseases of the respiratory system 510-519 Pleurisy (swelling of the lining of the lungs), collapsed lung, and respiratory failure
  
- Diseases of the digestive system** 520-579 Diseases affecting the teeth and mouth, salivary glands, digestive tract, and the abdominal cavity. Examples include dental abscess, ulcers, appendicitis, hepatitis (excluding viral hepatitis), cirrhosis of the liver, gallstones, pancreatitis, abdominal hernia, and intestinal polyps
  
- Diseases of the oral cavity, salivary glands, and jaw 520-529 Tooth problems (too many, too few, abnormal shape or size, cavities, bleeding gums, toothaches), and infections and swelling of the mouth, jaw, and tongue
  
- Diseases of the esophagus, stomach, and duodenum 530-537 Ulcers of the esophagus (tube that transports food to the stomach), stomach, and small intestine; indigestion; and uncontrollable vomiting
  
- Appendicitis 540-543 Swelling of the appendix (rupture, surgery, or both may result)
  
- Hernia of the abdominal cavity 550-553 Ruptures of the groin and diaphragm (muscle which separates the chest area from the lower part of the trunk)
  
- Non-infectious enteritis and colitis 555-558 Crohn’s disease and swelling of the intestine and colon
  
- Other diseases of the intestines and peritoneum 560-569 Irritable bowel syndrome, blockage of the intestine, constipation, and diarrhea
  
- Other diseases of the digestive system 570-579 Diseases of the liver, gallbladder, and pancreas; hepatitis; blood in stool; and bleeding in the stomach and intestine
  
- Diseases of the genitourinary system** 580-629 Diseases affecting the kidneys, the prostate, and testes; benign breast diseases; infertility (male and female); diseases of the ovary; pelvic inflammatory disease; and menstrual disorders
  
- Nephritis, nephrotic syndrome, and nephrosis 580-589 Swelling of the kidney; swelling of the small blood vessels in the kidney; and kidney failure

• Other diseases of the urinary system	590-599	Swelling and infection of the kidney and bladder; kidney stones; and difficulty urinating
• Diseases of the male genital organs	600-608	Enlarged prostate; swelling of the scrotum and prostate; and abscess of the prostate
• Disorders of the breast	610-611	Benign tumors, cysts, and infections of the breast
• Inflammatory disease of the female pelvic organs	614-616	Swelling of the uterus, ovary, fallopian tubes, or cervix
• Other diseases of the female genital tract	617-629	Conditions associated with menopause and postmenopause; PMS; infertility; and cramps
<b>Complications of pregnancy, childbirth, and the puerperium</b>	630-676	Miscarriage; complications of pregnancy, such as hemorrhage; pregnancy-related high blood pressure; preeclampsia; and premature labor or other complications of labor
• Ectopic and molar pregnancy	630-633	Development of fetus outside the uterus and growth of cysts
• Other pregnancy with abortive outcome	634-639	Miscarriage and complications associated with miscarriage
• Complications mainly related to pregnancy	640-648	Abnormal bleeding and possible miscarriage; infections; high blood pressure caused by pregnancy; and premature labor
• Normal delivery, and other indications for care in pregnancy, labor, and delivery	650-659	Delivery requiring little or no assistance; multiple births; breech birth; and problems of the fetus or placenta which affect care of mother
• Complications occurring mainly in the course of labor and delivery	660-669	Long labor; unusually fast delivery; and abnormal bleeding after delivery
• Complications of the puerperium	670-676	Infections of the breast; blood clot in lung; and varicose veins
<b>Diseases of the skin and subcutaneous tissue</b>	680-709	Acne, cellulitis, sunburn, psoriasis, and seborrhea

• Infections of the skin and subcutaneous tissue	680-686	Abscesses, boils, hair-containing cysts, and pus-filled blisters
• Other inflammatory conditions of skin and subcutaneous tissue	690-698	Skin rashes caused by detergents, oils, greases, solvents, sun, food, drugs, or medicine
• Other diseases of the skin and subcutaneous tissue	700-709	Corns, calluses, heat rash, swollen hair follicles, acne, and ingrown fingernails and toenails
<b>Diseases of the musculoskeletal system and connective tissue</b>	710-739	Arthritis, systemic lupus erythematosus, ankylosing spondylitis, herniated intervertebral disc (“slipped disc”), lumbago, sciatica, rheumatism, tendonitis, and osteoporosis
• Arthropathies and related disorders	710-719	Arthritis; joint pain and stiffness; and other diseases of the connective tissue which supports and connects internal organs, forms bones and blood vessel walls, and attaches to bones
• Dorsopathies	720-724	Swelling of the spine; herniated, slipped, and ruptured disc; rheumatoid arthritis of the spine; lumbago; and sciatica
• Rheumatism, excluding the back	725-729	Swelling and degeneration of joints, muscles, tendons; tennis elbow; and bursitis
• Osteopathies, chondropathies, and acquired musculoskeletal deformities	730-739	Fracture caused by bone disease; osteoporosis; curvature of the spine; flat foot; hammer toe; and development of deformities of the nose, toes, feet, legs, arms, and hands
<b>Congenital anomalies</b>	740-759	Spina bifida; cleft palate; harelip; and various chromosomal anomalies, such as Klinefelter’s syndrome
<b>Certain conditions originating in the perinatal period</b>	760-779	Maternal high blood pressure; maternal malnutrition; ectopic pregnancy; breech birth; fetal malnutrition or slow growth; injuries related to birth trauma; and perinatal jaundice

<b>Symptoms, signs, and ill-defined conditions</b>	780-799	Blackout, chills, dizziness, fatigue, pallor, abnormal weight loss, undiagnosed chest pain, and heartburn
• Symptoms	780-789	Hallucinations, fainting, convulsions, dizziness, fatigue, fever, sleep disturbance, rash, headache, sore throat, chest pain, nausea, vomiting, and heartburn
• Non-specific abnormal findings	790-796	Abnormal x-ray, blood, stool, and urine test results
• Ill-defined and unknown causes of morbidity and mortality	797-799	Senility; asphyxia; respiratory arrest; nervousness; and unexplained death within 24 hours of onset of symptoms
<b>Injury and poisoning</b>	800-999	Dislocation of joints; sprains and strains of associated muscles; concussions; bruises; cuts; internal injuries from crushing, puncture, tearing, or blunt impact; burns; blisters; poisoning; frostbite; heatstroke; and complications of medical or surgical care
• Fractures, all sites	800-829	Cracks or breaks of any bone
• Dislocations	830-839	Separation of a bone from its normal socket or joint
• Sprains and strains of joints and adjacent muscles	840-848	Strains are injuries to muscle from overuse or stretching the muscle beyond its normal limit; sprains are injuries involving tearing or overextending the ligaments of a joint
• Intracranial injuries excluding those with skull fractures	850-854	Concussions; internal bruises; and bleeding within the head without a fracture of the bones of the skull
• Internal injuries of the thorax, abdomen, and pelvis	860-869	Bruising, crushing, tearing, or rupturing the chest, abdomen, and pelvis and the organs within these areas of the body
• Open wounds	870-897	Animal bites; cuts; lacerations; punctures; and amputations, excluding the arteries and veins

- Other injuries and late effects of external causes

900-999 Miscellaneous injuries, including injuries to the arteries and veins; problems that occur an extended period of time after the injury has taken place ("late effects"); superficial bruises and abrasions; burns; post-injury shock; poisoning; toxic side effects of chemicals; heatstroke; electrocution; and altitude sickness
  
- Supplementary classifications related to personal or family history of disease**

V10-V19 Covers situations in which the person is not ill or injured but has a personal or family history of problems, such as cancer, mental illness, allergies, or arthritis that may affect his or her risk of illness
  
- Supplementary classifications related to health care for reproduction and child development**

V20-V28 Problems related to pregnancy, postpartum care, contraception, outcome of delivery, and physical development of child
  
- Contact with health services for reasons other than illness or injury**

V50-V59 Care for workers who have been treated previously for an illness or injury that is no longer present but who receive care to complete treatment or prevent recurrence

## **NOTES**

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